

NIA Project Registration and PEA Document

Date of Submission

Jun 2020

Project Reference Number

NIA_CAD0058

Project Registration

Project Title

Energy Centre

Project Reference Number

NIA_CAD0058

Project Licensee(s)

Cadent

Project Start

March 2020

Project Duration

2 years and 0 months

Nominated Project Contact(s)

Nick Cannon – Project Manager
James Harrison – Director of London Network
Cadent Paul Massey – Managing Director
Aqua Consultants

Project Budget

£479,780.00

Summary

Within the Cadent Gas Network there are a high volume of assets contained within Multi-Occupancy Buildings (MOBs) that vary in age, condition and complexity.

Currently the maintenance of gas assets in MOBs is carried out in accordance with historic gas industry standards and asset management strategies, such as IGEM/G5. During this work there is an opportunity for a change in approach that will have long term benefits to our customers and the environment. This is currently looked at under Cadent's Energy Exchange Initiative switching from gas to electric but further information is required to understand building requirements for Energy Centres where customers remain on gas which is then converted to electricity.

Nominated Contact Email Address(es)

Innovation@cadentgas.com

Problem Being Solved

Within the Cadent Gas Network there are a high volume of assets contained within Multi-Occupancy Buildings (MOBs) that vary in age, condition and complexity.

Currently the maintenance of gas assets in MOBs is carried out in accordance with historic gas industry standards and asset management strategies, such as IGEM/G5. During this work there is an opportunity for a change in approach that will have long term benefits to our customers and the environment. This is currently looked at under Cadent's Energy Exchange Initiative switching from gas to electric but further information is required to understand building requirements for Energy Centres where customers remain on gas which is then converted to electricity.

Method(s)

An Energy Centre is a process where heat is generated to supply the community heating system, and in the context of this innovation the Energy Centre will draw gas from the Cadent network and convert it to electricity at the MOB's location.

Aqua Consultants will work with Cadent to understand current processes and requirements for MOB's locations. This will be completed through current data analysis and site visits to assess the buildings, energy consumption and other requirements.

Research will then be undertaken on viable technologies to fully understand the suitability for the gas industry. This will also look at the funding mechanisms to support this work and optimal performance to gain maximum benefits to Cadent and our customers by removing gas riser pipework from buildings and possibly impacting customer bills.

This work will then be documented into a final report which will specify the project outcomes and recommendations for Energy Centres in relation to MOB's. The report will detail all requirements including implementation and commercial details to support further work in this area.

Scope

Project Scope –

- Cadent Meeting
- Analysis of Cadent Data
- Cadent Site Visits
- Research Report –
 - o Viable Technology
 - o Funding Mechanisms
 - o Optimal Technology
 - o Commercial Requirements
 - o Implementation
- Field Report

Objective(s)

The objectives of this project are to:

- Review long term sustainable alternatives to gas risers in MOB's
- Improve Energy Efficiency of Buildings
- Potentially Impact Customer Bills Through Improved Efficiency

The outputs of this work will allow Cadent to understand the requirements for Energy Centres and the viability for use within the network.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The project will be deemed as a success by:

- Identification of suitable MOB's locations for Energy Centre applications
- Clear understanding of process and funding mechanism
- Evidence to support wider innovation strategy for MOB's

Project Partners and External Funding

Cadent – 90% of project will be funded by NIA

Project Partner – Aqua Consultants

Potential for New Learning

Work in this space has not been completed before and will give Cadent an understanding of the viability of Energy Centres and the long term approach to gas risers in MOB's. The results from the project will allow Cadent to build on current MOB's knowledge and

provide further information relating to buildings in the network.

Scale of Project

This project is to undertake research on Energy Centres as a viable long term solution to gas risers in MOB's and provide a final report to document this with recommendations. This will be carried out over a 12 month period with an expenditure of £479,780 (including 10% contingency).

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

Research will be completed by Aqua Consultants with site visits to be completed in Cadent's North London area.

Revenue Allowed for the RIIO Settlement

No Specific RIIO deliverable output.

Indicative Total NIA Project Expenditure

Total expenditure will be £479,780

Project Eligibility Assessment Part 1

There are slightly differing requirements for RIIO-1 and RIIO-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RIIO-2 / RIIO-1).

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations (Please complete sections 3.1.1 and 3.1.2 for RIIO-2 projects only)

Please answer **at least one** of the following:

How the Project has the potential to facilitate the energy system transition:

n/a

How the Project has potential to benefit consumer in vulnerable situations:

n/a

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

Project must have the potential to deliver a Solution that delivers a net benefit to consumers of the Gas Transporter and/or Electricity Transmission or Electricity Distribution licensee, as the context requires. This could include delivering a Solution at a lower cost than the most efficient Method currently in use on the GB Gas Transportation System, the Gas Transporter's and/or Electricity Transmission or Electricity Distribution licensee's network, or wider benefits, such as social or environmental.

Please provide an estimate of the saving if the Problem is solved (RIIO-1 projects only)

The benefits of the project are:

- Alternative to gas riser replacement
- Potential impact to cost
- Impact to customer costs
- Potential reduction to customer costs
- Potential reduction to customer disruption
- Improved environmental impact through decarbonisation

Please provide a calculation of the expected benefits the Solution

Benefits case to be updated during project due to no work completed in this area previously for comparison.

Please provide an estimate of how replicable the Method is across GB

All Network Licensees have Multi Occupancy buildings with Gas riser systems. Therefore this technology could be rolled out across all gas networks in the UK.

Please provide an outline of the costs of rolling out the Method across GB.

Costs would be clarified on completion of the project with final report.

Requirement 3 / 1

Involve Research, Development or Demonstration

A RIIO-1 NIA Project must have the potential to have a Direct Impact on a Network Licensee's network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following (please tick which applies):

- ☒ A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).
- ☐ A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems)

and/or software)

- ☐ A specific novel operational practice directly related to the operation of the Network Licensees system
- ☐ A specific novel commercial arrangement

RIO-2 Projects

- ☐ A specific piece of new equipment (including monitoring, control and communications systems and software)
- ☐ A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven
- ☐ A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)
- ☐ A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology
- ☐ A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution
- ☐ A specific novel commercial arrangement

Specific Requirements 4 / 2a

Please explain how the learning that will be generated could be used by the relevant Network Licensees

Project outputs will be shared with other GDN's which will enable them to apply on their own networks.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIO-1 only)

Gas Riser Replacement – Alternative solution to gas riser replacement which can be a long and costly process.

- ☒ Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Is the default IPR position being applied?

- ☒ Yes

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNE, NIA, NIC or SIF projects already registered, being carried out or completed.

Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

Pre-work completed through research and consulting the NIA portal that no similar research is being completed.

If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

n/a

Additional Governance And Document Upload

Please identify why the project is innovative and has not been tried before

This approach has not been completed within the Cadent network and no other NIA projects in flight looking at this approach. No previous work completed in this space due to cost and unknown outcomes of the project

Relevant Foreground IPR

n/a

Data Access Details

n/a

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

There are risks and uncertainties as to whether this technology is suitable for usage within our MOB's buildings.

Please identify why the project can only be undertaken with the support of the NIA, including reference to the specific risks(e.g. commercial, technical, operational or regulatory) associated with the project

Currently the unknown outcomes of the viability of this work are too great to fund the project without NIA support.

This project has been approved by a senior member of staff

☒ Yes